University of Washington

ARBORETUM BULLETIN

Published by the Arboretum Foundation
Summer 1984, Vol. 47, No. 2

Concerning this issue. . .

There's a new look to the *Bulletin!* In an effort to increase the readability, we have instituted some changes—a different typeface, in a larger size. We are interested to know how you like the *Bulletin's* new look.

Other changes are forthcoming, as well. It is time for me to say goodbye, as I have accepted a position as editor for the Burke Museum; this issue will be my last *Bulletin* as editor.

Don't miss the contents of this issue: a hilarious saga by Jean Niemeier, some horticultural history of the University of Washington campus by Norman Johnston and the inside story of garden photography by Joy Spurr, among other interesting articles.

I have enjoyed the job of producing the *Arboretum Bulletin.* I would like to say a sincere thank you to all those who have helped with the publication in the years that I have been editor, and I'm pleased to have made so many friends.

With my sincere best wishes,
SUSAN LIBONATI-BARNES

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The ARBORETUM BULLETIN is published quarterly, as a bonus of membership, by the Arboretum Foundation, a non-profit organization to further the development of the Washington Park Arboretum. Information regarding membership in the Foundation may be obtained by writing to the Arboretum Foundation, University of Washington XD-10, Seattle, WA 98195 or by calling (206) 325-4510. Articles on botany and horticulturally-related subjects written by professional and amateur botanists, horticulturists, educators and gardeners are welcomed. No part of the BULLETIN may be reprinted without the authority of the Arboretum Foundation. Typesetting and lithography by Frayn Printing Company.

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COVER

Northern maidenhair fern *(Adiantum pedatum)*. This dewy sprig, found near Boulder Valley in the Western Cascades, was photographed in natural light. For more about nature photography, see page 10.

Photo: John Bolivar

Joseph Witt at the Arboretum Summer Stroll, August 1983. *Photo: D. Normark*

Joseph A. Witt: His Work at the Arboretum from 1952 to 1983

BRIAN O. MULLIGAN

Joe Witt came to the Arboretum in December 1952, when he was hired as a Recorder to replace another man who had retired. At that time he was a graduate teaching fellow in the College of Pharmacy at the University of Washington and was strongly recommended for the position by both his professor and the Dean of the College, Forrest J. Goodrich. No doubt he had some desire to widen his knowledge of plants grown in western Washington, since his previous horticultural and botanical training had been entirely at Washington State University, Pullman, where he gained both bachelor's and master's degrees, in 1943 and 1948 respectively. He may also have had some thought that this position could provide an entry into a somewhat different field of work, with perhaps greater possibilities for future advancement.

Though at first Joe was employed in checking names and making new labels for various groups of plants in the Arboretum, his talent for teaching others soon became evident and he was given more rein in that respect. His first article appeared in the *Arboretum Bulletin* in the fall of 1955, on damage to plants by the exceptional heat in June of that year; in the winter issue he published the first article of a long series on "New and Unusual Plants in the Arboretum." New plants which he described here for the first time included *Ceanothus impressus* 'Puget Blue', *Magnolia salicifolia* 'Else Frye', *Mahonia* x 'Arthur Menzies', and *Rhododendron* 'Gene'. From then onwards he contributed to most issues of this quarterly journal. Many articles concerned individual plants, but others dealt with particular groups of genera such as the birches, oaks, broad-leaved evergreens, hollies, manzanitas and *Nothofagus* (southern beech); some recounted such matters as the growth rate of many young trees (on which he kept regular records, with the help of students or other assistants), damage by cold weather, fall coloring, rhododendron hybridizing, and his professional travels in England and Scotland in 1966. He wrote a series entitled "The Arboretum Answers," replying to enquiries by visitors or by telephone, and from 1974 onwards authored his Annual Report on work and conditions in the Arboretum. A full list of his written contributions here and elsewhere will be published later. They number over one hundred in the *Bulletin* alone.

In July, 1957 Joseph Witt was appointed Assistant Director of the Arboretum,

Early days in the Arboretum: Joe Witt in 1960, as Assistant Director. Photo: Dr. D. Metheny.

which officially recognized his abilities both in title and in a higher salary. The following spring he started a course for Girl Scouts on "Tree Identification" and a year later one on "Ornamental Trees and Shrubs for Northwest Gardeners." From June to October 1959, he appeared on KOMO-TV to give regular programs on the Arboretum and its plants. As a photographer he continuously added to the Arboretum's existing collection of color slides, used by himself or other staff members for talks to garden clubs, to Arboretum Foundation Units and professional societies, or to be borrowed by others for similar purposes. In the three years 1967 through 1969 he added 867 slides, bringing the total then to nearly 4,000. (It now numbers more than 7,000.)

In June 1966 he was able to join a professional 21-day tour of the British Isles, organized by the New York Botanic Garden. This certainly greatly enlarged his knowledge of both public and private gardens and their plants and cultivation, but he found the experience almost too much to absorb fully in that time period.[1] For many years he contributed a regular column to the monthly publication of the Washington State Nurserymen's Association, on particular plants in the Arboretum which he thought of value to the nursery trade; in January 1970 he was made an honorary member of that Association.

The annual collection and distribution of seeds from the Arboretum to the international seed exchange amongst botanic gardens and arboreta was regularly organized and overseen by him, involving many willing volunteers from collectors to dispatchers, particularly members of the Vivian Mead Unit (#66) of the Arboretum Foundation. This has proved to be one of the best means of obtaining new plant material from other countries with cli-

Joe Witt, Brian Mulligan and Dick Hart in the Arboretum, 1976.

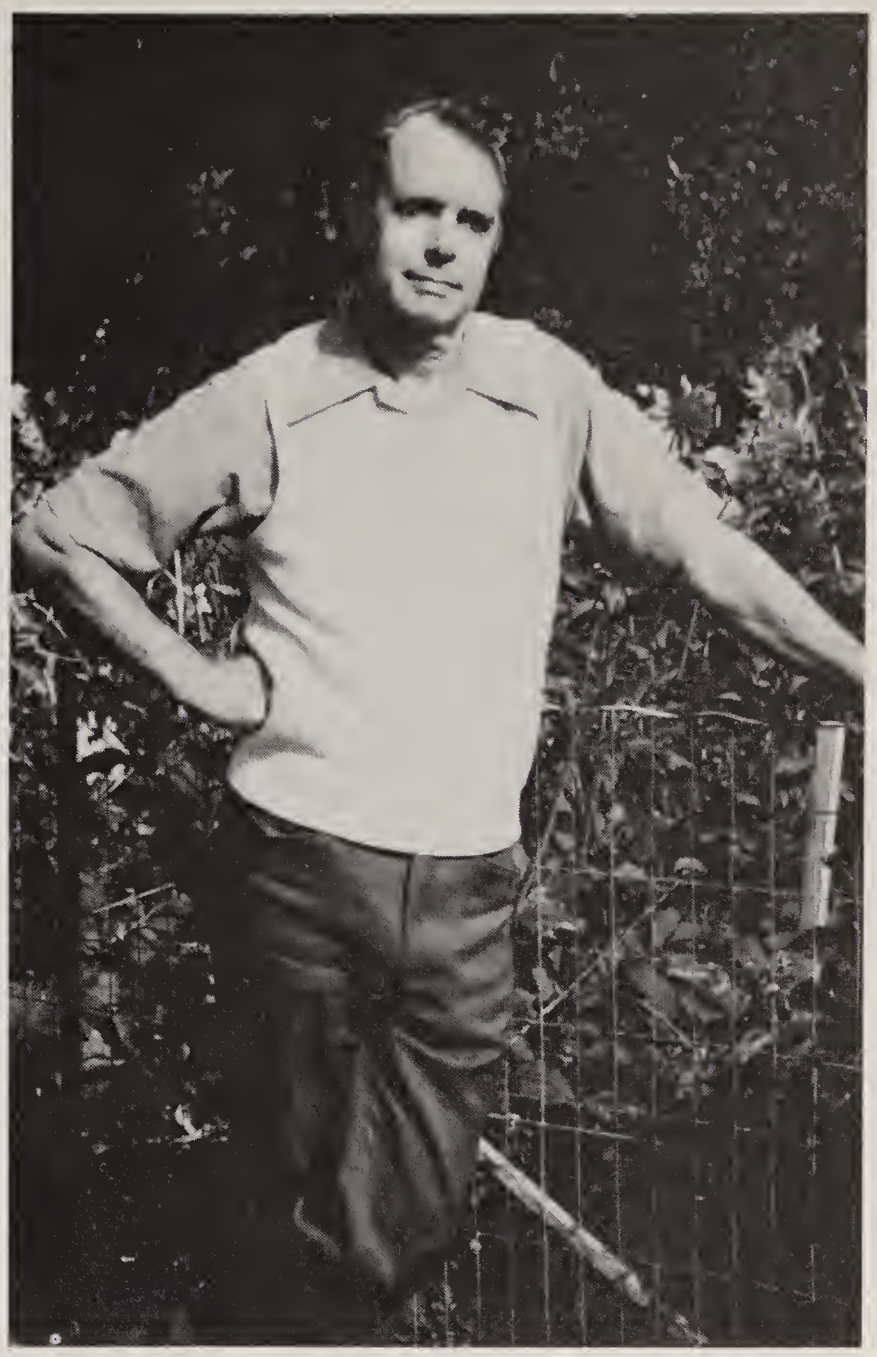
[1] *See* Witt, Joseph A. "A Professional Horticultural Exploration of England and Scotland"
Part I *Arb. Bull.* 29(4):88, Winter 1966
Part II *Arb. Bull.* 30(1):7, Spring 1967
Part III *Arb. Bull.* 30(2):26, Summer 1967
Part IV *Arb. Bull.* 30(3):52, Fall 1967

mates similar to our own, especially from Japan. In 1971 he was elected Vice-President of the American Association of Botanic Gardens and Arboreta, and a year later as President of the organization he presided over the annual meeting held in Seattle in September 1972, at which J.S. Bethel, then Dean of the College of Forest Resources, was principal speaker.

In order to relieve the pressure on himself and other staff members such as the late Robert VanDenberg, Joe trained members of the Foundation's Units to act as tour guides. He initiated the program of attending at the office on Sunday mornings in the spring months to meet visitors; this task later was relegated to more volunteers. He made short instructional films with the propagator, Richard van Klaveren, and others; he constantly answered telephone enquiries on plant problems of all kinds.

All this varied experience prepared him well for taking over day-to-day maintenance of the Arboretum and its plant collections when I retired in June, 1972. In January of 1973 he was appointed a Research Assistant Professor in the College of Forest Resources, and in July, Curator of Plant Collections for the Arboretum. He was then able to decide upon the new plantings to be carried out, of which the first was another bed for camellias on the west side of Arbortum Drive East, south of all previous plantings. In 1974 and 1975 the holly collection was extended into the native woodland to the south, and a small pool in the center of Rhododendron Glen cleaned out and its banks replanted, principally with dwarf conifers.

In 1976 and 1977 work was begun on the hillside south of Loderi Valley, above Azalea Way. Tasks included the pruning up of the big native maple trees to permit planting beneath them, and the construction of new paths through the area. This planting eventually developed into his Himalayan hillside. In its southern portion were specimens of maples, *Rehderodendron, Osmanthus, Pieris,* and large-leaved species of *Rhododendron* higher up the slope; in 1981 and 1982, using memorial funds, the



Joe Witt, by Pablo Abellera's dahlia garden, 1977.

northern end was given over to rhododendrons raised in the United States. In 1978 and 1979 he added to the collection of Japanese maples in Woodland Garden, at the east end close to Arboretum Drive; a new planting of native American azaleas was begun at the lower west end of Loderi Valley. On the east side of Arboretum Drive just south of Rhododendron Glen, two more beds were prepared and planted with camellias; one has a mixture of forms of the hybrid *Camellia* x *williamsii* and of the Chinese *C. reticulata*, the other has some of the fall blooming *C. sasanqua.* This has proved to be a very successful combination, for two seasons of the year.

In 1981 and 1982 the Conifer Meadow, situated in the old pit at the junction of East Lynn and East McGraw Streets East, was filled and then planted according to a plan designed by Mr. Eric Hoyte, Landscape Architect for the University of Washington. Surplus young trees from the Arboretum nursery were used for this pur-

Professor Joseph A. Witt, on the occasion of his receiving the Outstanding Public Service Award from the University of Washington Alumni Association.

Photo: Joe Freeman
Courtesy of University of Washington
Photographic Services

pose.[2] This certainly improved a very ugly corner of the Arboretum, although it will be some years before the planting matures. The year 1982 also saw the thinning out of the old collection of camellias and the planting of another new bed on the west side of Arboretum Drive East to hold the surplus plants.[3]

This was a banner year for Joe, the peak of his career as it proved. In June he received the unique Outstanding Public Service Award from the University's Alumni Association; on July 1 he became a full professor in the Department of Urban Horticulture. It is a tragedy that not much more than a year later he was stricken by the disease which eventually brought to a most regrettable close such a successful and constructive life of service to the people of this region. The Arboretum has had many devoted and practical servants during its fifty-year existence, but none who gave more to it in so many ways than Joe Witt. I am happy and proud to have been associated with him for more than thirty years. Long may his work and example remain with us.

---

[2]*See* Hoyte, Eric. "The Conifer Meadow" *Arb. Bull.* 45(4):34, Winter 1982.

[3]Briggs, Sandy. "Update on the Camellia Collection" *Arb. Bull.* 45(4):26, Winter 1982.

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This list is necessarily incomplete due to the fact that some donors wish to remain anonymous.

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The evening primrose, Oenothera. *Photo: B.J.D. Meeuse*

Edibility Extended!
or
The Dawn of Evening Primrose

B.J.D. MEEUSE

In my recent article "The Limits of Edibility," *Arboretum Bulletin* 46(2): 27-33, Summer 1983, I pointed out that we have to be a bit conservative in our estimates of the food value of wild plants. Over a period of perhaps 5,000 years or more, so I argued, our ancestors have been selecting from nature those species that had the most to offer, and have been cultivating these with ever-increasing success. We cannot expect too much from the species that are left to live as wild plants!

In its generality, this point certainly has merit, but we should not be blind to the possibility that once in a while a species of wild plant with exceptional potential can still be discovered. Not to be overlooked in our evaluation of the situation is the fact that modern developments in biochemistry and nutritional science have given us a better "eye" for the possibilities than our ancestors had!

Evening primrose (*Oenothera,* in the Onagraceae; not to be confused with

"ordinary" primroses, which are in the Primulaceae) gives us a case in point. It turns out that the oil from the seeds of *Oenothera biennis* and *O. lamarckiana,* American species that are now common also in parts of western Europe, is exceptionally rich in unsaturated fatty acids, especially in linolic acid and gamma-linolenic acid (GLA), a very rare but most valuable compound which in the human body is converted by certain enzymes into prostaglandins.

We now know that in mammals the prostaglandins have a finger in many pies. In humans, they are essential for maintaining the immune system and for making the female reproductive system perform properly. Too low a level of prostaglandins in the body leads to a whole array of unpleasant symptoms: stomach cramps, headaches, premenstrual troubles, and skin abnormalities. It is true that in most populations prostaglandin deficiencies are rare for the simple reason that humans can convert linolic acid to GLA (and then to prostaglandins). In a number of individuals, however, the enzymes that are needed for this first conversion are lacking; these persons will benefit greatly from the consumption of ready-made GLA. At least one pharmaceutical firm in western Europe is already producing evening primrose seed oil commercially. The only other natural food in which GLA has been found so far is human milk. Even cows' milk and products made from it such as cream and butter lack GLA. Also worthless, in terms of GLA, are cornseed oil, olive and sunflower oil, and "technical" fats such as margarine and shortening.

In biology, *Oenothera* already wears a crown. The idea that there are such things as genetical mutations was launched by Hugo de Vries around the turn of the century on the basis of breeding experiments with plants of this genus. It has also been shown that *Oenothera* seeds are among the champions of longevity. Scientists interested in biological clocks, struck by the astonishing regularity which *Oenothera* flowers display in their opening time (the plant did not get its name of *evening* primrose for nothing!) have used *Oenothera* as one of their favorite guinea pigs. (*See* "The Opening and Closing of Flowers," Arboretum Bulletin 42(2): 29-35, Summer 1979.) It is most gratifying that these findings have added another jewel to the crown of this remarkable genus.

Evening primrose growing wild on a hillside.

Photo: B.J.D. Meeuse

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Photography In Your Garden

JOY SPURR

Joy Spurr, long a supporter of the Arboretum, is an internationally known nature photographer and writer.

Every gardener finds infinite pleasure in watching the seeds of toil and patience grow into a beautiful landscape. A garden is never dull, for it is in a constant state of change. In my garden, *Rhododendron* 'Unknown Warrior' waves flaming clusters of blossoms in early spring as it stands guard over the rockery. A few weeks later the cedar fence drips with pink buds of *Clematis montana,* and in fall a tumultuous mix of red and gold Japanese maple leaves tumbles across the patio. There is a way to prolong the visual delights in your garden. Exchange garden tools for a camera and record on film the seasonal cycle of each plant. Photographic memories will brighten gray winter days and permit you to share the forms, colors and textures of your special landscape with fellow gardeners.

Photography is an individual expression, both a form of communication and an art. The plant you photograph is nature's creation, but you can be creative in the manner in which you record your chosen subject. Since trees, shrubs, wildflowers and fungi are not going to walk away, you have time to experiment with camera angles, different directions of light and different depths of field. Good photographs are the result of a learning and seeing process. Learn how to use the tools of photography and then learn to see.

Equipment

The instruction manual that comes with your camera tells you how to perform the mechanical operations. Without putting film in the camera, go through each step listed in the manual until you are thoroughly familiar with the camera's performance: focusing, shutter speed, aperture settings (f-stops), electronic flash synchronization, time exposure settings, depth of field scale and preview button and any other features of your particular brand of camera. Don't neglect the lenses and accessories. Thus you learn to utilize the equipment to its greatest potential. Keep the instruction manual in your camera bag so that you can refer to it if something goes wrong with the equipment, or if you forget how a certain feature on the camera works.

I use a 35mm single lens reflex camera with 55mm and 105mm macro lenses that permit me to photograph the entire plant and then move in for closeups at a magnification of almost life size. Other essentials include a tripod, cable release, electronic flash, 18% gray target card, 8x10-inch white reflector card and Kodachrome 64 film.

Film selection is a personal matter. The slow speed films, ISO/ASA 25 and 64 are fine-grained and have the best color saturation for plant photography. High speed

Amanita pantherina. *Many of the features important to the identification of this poisonous mushroom are visible in the photo: white gills, ring on the stalk, cup at its base, and a dark cap with white warts. The proper depth of field allows all the structures to be in focus even on the overturned mushroom. In contrast to the photograph of bunchberry, the light portions are exposed for maximum definition.*

Photo: Joy Spurr

films, ISO/ASA 100 and above, offer some obvious advantages but there are some sacrifices in color values as the speed increases. Generally, in the faster films the color is grainier, less saturated and shows less contrast.

Choosing the Subject

Choose a subject that is fresh and undamaged, unless you are purposely trying to show a diseased or bug-eaten leaf. Usually I shoot a series of pictures of each subject. I photograph the entire plant and show some of its environment, then move in for closeup shots of leaves, flowers, fruits and bark. Even the root formation above ground may show a distinctive design.

Background

With camera in position, look through the viewfinder, move around your subject and look at it from different directions. Select the camera angle that shows the best side of the subject, then check the framed area for background distractions such as sticks and stones, cigarette butts, pieces of metal or plastic, or shiny leaves that can ruin an otherwise well-composed picture. A clothespin is a handy tool with which to clip an unsightly twig out of the way without damaging it. Green leaves, stumps, tree shadows, rocks and the blue sky are good, natural backgrounds. Choosing a background with texture and color in contrast to that of the subject (center of interest) will enhance it. Sometimes black

Tulip 'Yellow Dawn.' Backlighting gives brilliance to the "petals" (tepals) and demonstrates their delicate veining. Photo: Joy Spurr

or colored art paper is an effective background, but the paper must be placed far enough away so that the subject's shadow does not fall on it, but not so far away that the edges of the paper are visible. Some cameras will photograph a slightly larger portion of the scene than can be seen through the viewfinder.

Lighting

Lighting on your subject, either natural light or electronic flash, is the key to good photography. Its source, direction, quality, intensity and color create mood, impact and vitality.

Front light on the subject is a flat light, almost shadowless. The result on film may be good technically but more often will lack impact. A sidelight of 30° to 45° produces a wide range of color values and increases contrast. Sidelight gives a three-dimensional quality and is usually a flattering light for most subjects. In photographs of scenery you will notice that leaves and grass appear greener with sidelight. High contrast and a dramatic quality that emphasizes texture are obtained with 90° sidelight. Backlight produces a strong contrast that gives outline to the subject and can be used to create a silhouette. Backlight gives interesting results with thin-petaled flowers or hairy seed pods, or with leaves, particularly when they show fall color.

Aperture setting, along with the shutter speed, controls the amount of light that reaches the film. To get the correct aperture setting in a backlit photo, I meter the shaded side of the subject, or meter from an 18% gray target card. There is some guesswork in such a situation, and it is advisable to bracket exposures to be sure of getting the effect you want. Bracketing involves taking one picture as the meter indicates, then taking another at one f-stop higher and another at one f-stop lower.

Lighting contrast on closeup photos may be controlled by placing a white reflector card opposite the main light source or by using fill-in electronic flash. I prefer to use a white reflector card because it throws in just enough light to soften dense shadows and thus gives an overall natural effect. When you use a combination of electronic flash with a reflector card, set the flash on manual mode and calculate the correct aperture. If the white reflector card is large in comparison to the size of the subject, the flash's automatic mode will respond to the white card rather than the subject and you may end up with an underexposed picture. For closeups of light-colored flowers I often combine backlighting with a reflector card in front of the subject, just out of sight of the camera lens. The backlighting outlines the petals and separates the flower from its background, while the reflector softens any front shadow.

It is difficult to calculate the correct aperture setting in a high contrast situation, such as that of a white flower against dark green leaves. Take a meter reading close to the white flower and set the f-stop accordingly. To be safe, bracket exposures.

Watch out for lens flare when you use backlight or sidelight on your subject.

Lens flare is caused by light reflecting off the outer and many inner surfaces of the camera lens; it shows up in the photograph in a variety of ways, from a generally reduced contrast to bright polygonal spots. So that the source of light does not strike the lens, change the angle of the camera and use a lens hood, or shade the lens with your hand.

Color

Color of daylight varies considerably between dawn and dusk. The reds and yellows of early morning and late afternoon render dramatic effects for scenics, but if you wish to record the accurate color of your subject under natural light, particularly with closeups of plants, plan your photographic sessions during hours when the sun is higher in the sky. Beware, however, of the hard, glaring midday sunlight that does not permit the best photographic results of scenics at high elevations and on bright, reflective surfaces of snow and sand deserts or beaches. If you must photograph during midday, bracket the exposures.

You can give yourself an interesting lesson in color changes by photographing a pond of waterlily pads with light from different directions. The results show an amazing change in color from green to gray. For most plant photography, bright overcast days give the best color saturation, and there are fewer problems with dense shadows or flare spots on leaves and stems.

It is notoriously difficult to photograph blue flowers such as lupine and still get a color that looks true-to-life. Film is sensitive to infrared rays that have wave lengths close to those of visible red but are just beyond the range of the human eye. What we perceive in color is not recorded identically by the film. Blue becomes purple, lavender becomes pink, purple becomes magenta. In addition, the recorded color varies with the angle of light. Move around the subject to find the direction of light that gives the deepest hue. Hint: blue is rendered better on an overcast day, or for closeups, with an electronic flash.

Depth of Field

Depth of field, the space in front of and behind the subject that is in sharp focus, is one of the most important tools of photography. Most lenses have a color-coded depth of field scale engraved on the lens barrel. Pairs of colored lines correspond to the f-stop number (aperture) of the same color. Focus on the subject. Take a meter reading and set the f-stop. Set the depth of field symbol on the colored line that corresponds to the f-stop. The numbers on the scale opposite the colored lines which match the f-stop give you the depth of field. Your camera may have a depth of field preview button that permits you to stop down the lens to a pre-selected f-stop and see how much background and foreground is in (or out of) focus. You can thus adjust the aperture and speed to get the depth of field you want.

Arbutus menziesii, *madrona. The trunk of this tree shows strength. By manipulating the depth of field to throw the background out of focus, the trunk is emphasized.* *Photo: Joy Spurr*

Cornus canadensis, *bunchberry. The miniature dogwood is one of our loveliest native groundcovers. The high contrast situation of white flowers against dark green leaves is best photographed on an overcast day. Note that the photographer has chosen to minimize detail within the "petals" (bracts) in order to retain the texture of the leaves.* *Photo: Joy Spurr*

Depth of field depends upon three factors:

1. *Focal length of lens.* The *shorter* the focal length of the lens, the *greater* the depth of field. A 24mm wide-angle lens gives much greater depth of field than a 50mm lens. Conversely, the *longer* a telephoto lens the *less* the depth of field.

2. *Lens to subject distance.* The *farther* the subject is from the lens, the *greater* the depth of field surrounding it.

3. *Aperture (f-stop).* The *smaller* the aperture, the *greater* the depth of field. Remember, however, that smaller-sized apertures have higher numbers: f/22 is a small aperture, f/4 a large one.

These three factors may be adjusted independently or in combination to give you creative control over the final picture. You can achieve particular effects such as softening harsh lines, blending background colors or making the center of interest stand out distinctly from other elements in the composition.

Looking, seeing, studying, patience and creativity are essential ingredients in good photography. While you photograph different species of plants you increase your knowledge about your subject and its environment. Both your life and your garden become more exciting. You can wander at your own pace to explore your garden and record it in all its art forms. Put away the spade and hoe, bring out the camera and have fun.

Magnolia x soulangiana. *A 105 mm macro lens captures the intricate beauty of this flower. Limiting the depth of field in this photograph emphasizes the reproductive parts (in sharper focus), allowing the petals to fade softly into the background.*

Photo: Joy Spurr

A Farewell to Editor

It seems less than fitting that this should be the time to comment on your editor, since this is the last issue of the *Arboretum Bulletin* that she will produce. It is suitable, however, that your former editor (i.e. myself) should be the one to tell you about her, for I have known Susan Libonati-Barnes for nine or ten years, at least five years longer than most people connected with the Arboretum. Susan was my "TA" (teaching assistant) when I took biology in 1975. She was a lively young person, somewhat elfin in appearance, who hated to pith frogs but gave her all to other aspects of the course. She is still lively, and her elfin appearance has not changed. How this is possible I cannot imagine, considering that she was a longtime student of that mushroom expert and famous gourmet Professor Daniel Stuntz. I was once told that Dr. Stuntz had had a hungry graduate student life, and he vowed that his graduate students would never go hungry. Therefore, he filled his lab with goodies of all sorts, pastries, cheeses, and the like. But somehow, Susan seems either able to resist them or to metabolize them at a great rate.

I knew that when Susan took up the editorship of the *Bulletin,* her readers would be exposed to a broader view of the plant kingdom than ever before since she is a PhD in mycology (the study of mushrooms and other fungi). Lo and behold! the Autumn, 1981 issue had, as a cover illustration, a beautiful drawing of *Boletus edulis,* that huge, magnificent mushroom that is so highly prized by Northwest mushroom hunters. What I did not know was that she has an exceptional way with words and a most artistic talent. What Susan has brought to the *Bulletin* is surely appreciated by her readers, as it is by the Editorial Board and those of us who have worked with her.

I wrote the foregoing note more than three years ago to introduce Susan Libonati-Barnes to the readers of the Bulletin. *A few words have been altered to make it current but the message remains the same. The only change I would make is to say that Susan has become an efficient editor, wise in the ways of printers and of her constituency. Her elfin appearance of three years ago has been maintained by dedication, hard work and the numerous pressures she has sustained.*

JAN PIRZIO-BIROLI

To Susan Libonati-Barnes:

Retiring Editor of the *Arboretum Bulletin*

The members of the *Arboretum Bulletin* Board wish to express to the retiring Editor, Susan Libonati-Barnes, our admiration and respect. The scholarly manner in which she has filled her post deserves our praise. As Editor she has had the chilling duty of meeting deadlines, unexpected emergencies and other forms of editorial duties.

As Editor she has worn many hats, so to speak. Numerous articles have been submitted to her for consideration, before reaching publication in this august journal! To siphon off the best articles, while cajoling the authors of the discarded ones requires tact and wisdom. Correcting grammar is no small part of the winnowing process.

The next ogre to be met and mastered is the printer, a formidable figure. Pictures have to be sorted out, printing approved, costs considered. The Editor emerges from the session bruised but not beaten. After final publication the *Bulletin* must withstand criticism as well as praise—immune to neither one.

Always gentle, ever agreeable, the Editor stands tall. We shall miss her greatly.

ROSAMOND P. ENGLE

The Flowering of the Alaska-Yukon-Pacific Exposition

NORMAN J. JOHNSTON

Editor's Note: 1984 marks the 75th anniversary of the Alaska-Yukon-Pacific Exposition, "a grand promotional fair" that was located for a few months in 1909 on the University of Washington campus.

In exchange for the use of the campus, the promoters of the fair promised to construct several permanent buildings (and many temporary ones) for the University. Among the structures still in use today are the fair's Fine Arts Building (Architecture Hall) and the Women's Building (Cunningham Hall). In addition, the celebrated Olmsted Brothers of Brookline, Massachusetts, were hired to prepare a plan of the grounds: ". . . the true legacy of the A-Y-P Exposition was that the University of Washington campus finally had a development plan that would take it into the future as a modern, comprehensive state university."

— from "Alaska • Yukon • Pacific Exposition"
by Louise Hastie
University Week, *Vol. 1, No. 30, May 1984*

Dr. Johnston is Chairman of the Department of Architecture at the University of Washington. In the course of his research he came upon some interesting material concerning the plants used on the grounds during the Exposition. The following article deals especially with this aspect of the preparation for the event.

Floral beds around the Geyser Basin with U.S. Government Building to the right and Manufacturers Building to the left.

When the Olmsted Brothers, America's premier landscape architecture firm at the turn of the century, began their planning of Seattle's Alaska-Yukon-Pacific Exposition, they had two objectives in mind. One was the execution of the general scheme for the Exposition grounds, planned for the lower two-thirds of the University of Washington campus. That part of the campus today is the result of the firm's inspired realization of the site's unique potential for this event.

Their second objective was to provide immediately for appropriate planting of the grounds and for the nursery and greenhouse acreage to support them. John C. Olmsted was the partner in charge of the Exposition work, but it was James Frederick Dawson who represented the firm at the site on a day-to-day basis and who was in charge of development.

Once approval of the Exposition plan had been given (early in 1907), Dawson noted that attention could then shift to establish

> "a nursery and build a greenhouse for the propagation and care of the plants and flowers that would later on be used in beautifying the various parts of the grounds . . . . Therefore at the very beginning of the work 20 acres of land at the southern portion of the grounds were cleared of large trees and cultivated, drained, supplied with water pipes, and put in condition to raise and take care of the necessary plants. About 10 acres of this was seeded for the purpose of making sod. Later on 5 acres of this had to be turned over for the use of plants. (This was about the middle of March 1907.)"

By the following January these facilities had become "pretty well filled up," according to Olmsted, not only with purchased stock that had been brought in but also with "hundreds of thousands" of plants. Through the following year additional plants were propagated in preparation for transplanting to permanent beds that would become available once the buildings were sufficiently finished. The bulk of this setting out process of some two million bedding plants began on March 1, 1909. Crews were doubled and then redoubled to have all the stock in place by the opening day of June 6.

View looking down Rainier Vista with Cascade and Geyser Basin.

These floral displays were never considered as mere accessories to the Exposition, for records note that "it is in the magnificent garden scheme, set into a landscape of transcending beauty, that reliance is placed and which will be the Exposition's proudest boast." As Dawson recalled, the planners consciously avoided "gaudy displays of ornamental carpet bedding such as designs of emblems, mottoes, or names of buildings worked up in colored foliage plants" that were fashionable at the time. The display, then, was more than a matter of numbers of plants, but rather of their selection and placement. Through massing of texture and color, simplicity was emphasized and adjoining buildings set off, all in support of the Exposition plan.

In making selections for foundation plantings for the Exposition buildings the firm relied heavily on various rhododendrons, more for their foliage than for

The formal garden.

their blossoms, which would be present for only a portion of the four and a half months of the Exposition. To insure continuing color the rhododendron beds were interplanted first with foxgloves, and later with cactus dahlias (the Exposition's official flower). Elsewhere, irises, delphiniums, hydrangeas, purple loosestrife, double hollyhocks, columbines and sunflowers added their color through the months. Intermediate plantings, often designed to enhance foreground beds, included such selections as roses 'Caroline Testout' and 'Dorothy Perkins' in the thousands, more foxgloves, asters, peonies, gladiolas, and Canterbury bells. The planting beds themselves were filled with massings chosen typically from hardy pinks, Shirley poppies, English tufted pansies (e.g., 'John Quarton,' 'Blue Perfection,' Sutton's Giant yellow and Giant white), English daisies, begonias, geraniums ('Pierre Crozy' and 'Madame Bruant'), sweet alyssum, phlox, anthuriums, yarrow, and sweet William. Hop vines were featured on fences and pergolas throughout the grounds.

An arc of formal gardens was located just below the Geyser Basin (today's Drumheller Fountain, Frosh Pond) with 5,000 roses at both ends. The rectangular beds between the end beds featured plants carefully chosen to insure continuous color throughout the months of the Exposition. These beds comprised patterns in dark colors at the edges, which blended into lighter shades and culminated in groupings of white at the centers. Japanese barberry (*Berberis thunbergii*) was used as hedging to define the edges of the beds.

Examining the lists of material for these plantings, the present-day gardener would perhaps be struck both by their familiarity and by their conservative range. It is a reminder of how much more versatile has become the selection available for practice today. Nevertheless, the richness of the floral scene and the prominence of its role in site planning indicate that plantings played a major role in finishing the setting for the Alaska-Yukon-Pacific Exposition and in contributing to the splendor of its 1909 success.

REFERENCES

James Frederick Dawson, "Planting at the Alaska-Yukon-Pacific Exposition." A typed manuscript, February 1, 1910, pp 1-5 (In Manuscripts Division, University of Washington Library.)

"Flowers," an anonymous manuscript implying Olmsted Brothers authorship, 1909. (Manuscripts Division.)

I Had To Kill The Empress

"She was beautiful. Everyone admired her.
But her behavior was outrageous."

JEAN NIEMEIER

Jean Niemeier, a native Seattleite long dedicated to the Arboretum, is an author and gardener who has written a most entertaining tale of the obstreperous offspring of a perfectly well-behaved parent. Of course, we don't mean to advocate the killing of real Empresses (or anyone else) for outrageous behavior, but you mustn't miss reading this saga of a not-entirely-successful murder.

I cut down the pretty tree. They said, "You wouldn't! You couldn't! You mustn't! Why on earth. . . ?"

She was tearing up my patio. I couldn't guess where she would emerge next, to disrupt my new garden.

Paulownia imperialis (tomentosa) S. & Z. was a beautiful tree in a friend's garden. Every May my friend made lovely Mother's Day corsages of the beautiful blue flowers and the chartreuse pods of *Helleborus foetidus*. I planted a small root cutting six years ago and paid no attention to it. No fertilizer. No special watering. It was just a gawky adolescent.

"What an ugly plant!" "Interesting!" "My goodness. . . ." The phallic shapes of its branches made a most ungainly plant, but it grew energetically. Bugs didn't bother it. Its large green leaves, much like those of a catalpa, shaded primroses in my front garden. After four years it presented interesting buds and some blue flowers. Folks agreed it might become a respectable garden tree.

By Mother's Day of its fifth year it was a gorgeous sight, completely covered with blue or bluish lavender flowers. The seed pods with their curious conical shape were packed with minute seeds.

In July, the tree began to set buds, interesting little knobs all over the ends of the branches. They grew larger and firmer and by Christmas they seemed ready to bloom. But no, they waited patiently until the first week in May to burst out into a blue shower. Now everybody wanted starts of the Empress. As I looked about for possible root cuttings for my friends, I found surprisingly energetic roots that willingly offered starts. . . .

I had been very careful not to plant the Empress, (or any of my other trees), near the edge of the stout, concrete patio of my new home. I didn't fertilize the tree at all; it got little water. I thought I knew all about the dangers of invasive roots. . . .

A healthy young Empress shoot developed six feet away from the trunk of the now 15-foot tree. I dug the shoot out and found that it was a sprout, from a large,

The author's Paulownia imperialis *in the fall of 1983. Note the unique branching pattern and buds.* *Photo: J. Niemeier*

tough "root," perhaps three inches in diameter, that seemed to have been coasting along just below the surface of my not-very-good soil.

I asked the friend who gave the tree to me, if she had ever had any trouble with the roots. None at all, she said. Her tree had been well-behaved, and was many years old, still blooming away out by her garage. Of course, she didn't have husky *Arbutus menziesii,* so she probably didn't have "madrona soil," (dry, low-nutrient, hardpan commonly associated with madronas).

Well, maybe so for her, but my Empress was making trouble. The concrete was cracking. Small shoots were coming up through the cement cracks. I hired someone to cut out the large "root" that seemed to be causing the trouble. It was some six inches in diameter!

But the concrete continued to waver, and then it started to crack badly, and when—twenty feet away from the tree—another Empress presented itself, I knew I had to take steps.

This year I warned visitors who came to admire the *Paulownia* that I was going to cut it down. They refused to believe me. I couldn't do such an awful thing to that beautiful tree. Advice was what I got much of!

But, after it bloomed this May, I cut it down. I killed the Empress. My garden plants didn't like it; they had enjoyed the shade of the tall *Paulownia* with its huge leaves; they sulked in the sunshine.

The stump, at least eight inches across at the cut, was too big to remove. In two weeks, two sturdy stems with healthy leaves emerged along the side of the cut stump. It was coppicing (sprouting freely from the base), like cut maple stumps do. I cut out the sprouts and planted them (at the far edge of my country property).

I took a forester's advice and made a fresh cut of the stump, then sawed and chopped down into it from all directions, and treated all the cuts heavily with brush killer. *That* seemed to slow the growth.

I had to dig up the front garden, because "roots" had networked the soil just a few inches below the surface and sprouts were

An example of a well-behaved Empress in full bloom. *Photo: William Eng*

"Root" of the author's Paulownia imperialis *which was four inches in diameter and fifteen feet long.* *Photo: J. Niemeier*

frantically trying to get started. I took pictures of pieces of "root" as long as fifteen feet and as big as four inches in diameter. The Empress had taken over that entire plot.

Now, months later, the Empress seems to have given up, but I had to treat many sprouts with undiluted weedkiller before they ceased coming from under the concrete, where I couldn't dig.

Why was this lovely tree so ornery for me? I have concluded that if I had had good garden soil, it might have been content to behave as it was supposed to do—as garden authorities say it does. But, where I am surrounded by madrona trees, which thrive in hard, infertile ground, planting soil for my nice shrubs and most rhododendrons has to be added. Only plants like salal, *Vaccinium, Mahonia,* and the occasional garden shrub like *Escallonia,* seem able to cope with plain "madrona soil."

Paulownia imperialis, generous in every way, didn't seem to need extra water and fertilizer, but she clearly resented my giving it to the rhododendrons not far away, and she sent her roots to get some for herself.

There is a limit to what you can expect of an Empress!

Paulownia, *often considered a weed tree in the United States, has attracted international attention of late. In Japan, traditionally it has been prized for the construction of the equivalent birdal cedar chests and of other fine articles. The wood, both lightweight and strong, is fast-growing, has beautiful grain and is easy to work. However, it is difficult to grow quality* Paulownia, *and there is not the traditional demand for the wood in the United States that there is in Japan. Thus it may never become an important crop.*

Horticulturally, Paulownia *is a beautiful tree. It is known to naturalize in the eastern United States. Jan Pirzio-Biroli remembers passing a ten-mile stretch of unbroken* Paulownia *forest growing in the moist bottomlands of southeastern Pennsylvania. Gorgeous. The Arboretum has a fine specimen by the lagoon, where the waterfowl congregate.*

Regarding the undesirable behavior of Mrs. Niemeier's Empress, it should be noted that not all Paulownia *exceed their bounds. Many cuttings from the Niemeier Empress did not even survive, much less take over. Likewise, in the early 1960's, Jan Pirzio-Biroli obtained a plant from a sucker such as Mrs. Niemeier describes. By its sixth year it had no extraordinary growth, and it never sent out another sucker. The soil situation was similar—clay "madrona" soil—and the* Paulownia *was planted less than six feet from the stump of a larger madrona that had been split by lightning. The inexplicable behavior of the obnoxious Empress remains a mystery.*

REFERENCE

Preston, Dickson J. 1983. "Paulownia, Miracle Tree or Passing Fancy?" *American Forests* May 1983, pp. 15-19, 47-52.

Cornus stolonifera var. *occidentalis* 'Sunshine'

A Golden Variegated Form of our Native Shrubby Dogwood

BRIAN O. MULLIGAN

On March 20th, 1941, six cuttings of a variegated form of red-osier dogwood were received from Mr. G.W. Naderman, of Oakville, in southwestern Washington. Identified as *Cornus occidentalis* (since called *Cornus stolonifera* var. *occidentalis*), they were given the number 638-41 in the Aboretum's Acquisition Book for that year. Unfortunately it contains no record of the original location of these cuttings, but one can speculate that they came from a plant not too far away from Oakville which is in the southeastern corner of Grays Harbor County, some 15 miles northwest of Centralia. Apparently, the plant has not been found since then; at least it remains unrecorded by local inhabitants or botanists. Any further information about its source would be very welcome.

By November 1947 there were five plants 10 to 12 feet in height growing in the Arboretum nursery, so we surmise that propagation had been quite successful. There must have been some rooted branches (layers) amongst those five plants in the nursery, for in June of the next year seven were recorded as planted in the new collection of shrubby species of *Cornus*. The shrubs were planted on the east side of a small creek, in the damp meadow area between Azalea Way and Lake Washington Boulevard, just south of its junction with Boyer Avenue.

Propagation of this plant must have continued by means of layers because in November 1949 another nine plants were placed on the north side of Foster's Island, an even wetter location than the meadow area. These are still growing there, although they are now much shaded by native ash trees which have grown up in the intervening years. Finally in November 1969 three more shrubs were planted on the north side of a grassy service road, near the original group.

Because these dogwoods are all fully exposed to the sun, they provide a noticeable splash of colored foliage that is easily seen from the adjacent boulevard. This display, which starts about mid- or late April when the new leaves emerge, continues all through the summer and early fall. In winter the reddish stems are quite conspicuous, although less so than those of the Asiatic species, *Cornus alba*. In August the leaves on the sunnier side of these plants are a pale yellow or chartreuse color. Sometimes the leaves may be all of

The variegated foliage with inflorescences of Cornus stolonifera *var.* occidentalis *"Sunshine".*
Photo: B.O. Mulligan

one hue, or they may have yellow margins and an irregular green area in the center; more rarely they are creamy white with a central green blotch. The general effect of these plants in the landscape is that of a light yellow mass; there are few other deciduous shrubs available to give us this color in summer. The new cultivar name 'Sunshine' therefore seems not only appropriate, but also attractive.

Up to the present time this plant has been known simply as *Cornus stolonifera* 'Variegata', and was thus identified in the catalogue of *Woody Plants in the University of Washington Arboretum,* published in 1977. However, since no description of it has yet been published, this article endeavors to remedy that omission. The new name will be registered with the National Arboretum, Washington, D.C. Herbarium specimens will be distributed to the National Arboretum and to other appropriate institutions.

DESCRIPTION

Stems: green when young, red or reddish in their second year; pith white, wider than the surrounding wood on each side; pubescence thin, scattered, appressed.

Leaves: on the young shoots 10.5 - 15.0 cm long, 5.0 - 6.5 cm wide, ovate-elliptic, acute at the tip, cuneate to rounded at the base, entire; color of the upper side varying from pale green to yellow, sometimes in patches; upper surface appressed pubescent, the lower surface more densely so; veins consisting of 7 - 8 pairs.

Inflorescence: peduncle appressed pubescent, the hairs both brown and white; pedicels and ovary with similar white pubescence; petals white, lanceolate, 3 - 4 mm long; styles about 3 mm long.

These characters of the inflorescence indicate that this plant falls within the forma *californica* (C.A. Meyer) C.L. Hitchc., of the variety *occidentalis* (T. & G.) C.L. Hitchc., as described in *Vascular Plants of the Pacific Northwest,* part 3, pp. 588-590 (1961).

Cornus stolonifera *in the meadow area between Azalea Way and Lake Washington Boulevard.* *Photo: B.O. Mulligan*

URBAN HORTICULTURE ARBORETUM COURSES

THE CENTER FOR URBAN HORTICULTURE

WINTER 1985

How to Prune Grapes
Instructor: Gerard Bentryn
Saturday, January 12, noon-3 p.m. $17.

Bird Identification for Beginners
Instructor: Merilyn Hatheway
Saturdays, January 19, 26, February 2, 9, 16, and 23, 9-11 a.m. $40.

Bright Plants of Winter, Part I
Instructor: Jan Pirzio-Biroli
Tuesday, January 22, 12:30-3:30 p.m. $12.

Bright Plants of Winter, Part II
Instructor: Jan Pirzio-Biroli
Tuesday, February 19, 12:30-3:30 p.m. $12.
Bright Plants of Winter, Part I and II: $20.

Fruit Tree Pruning Workshop
Instructor: Gary Moulton
Saturday, January 26, 9 a.m.-3 p.m. $25.

Vegetable Gardening Series
Instructor: Francis Dean
Entire Series $25.

I. Planning Your Vegetable Garden. Thursday, January 31, 7-9 p.m. $10.
II. Starting Seeds Indoors and Garden Preparation. Thursday, February 28, 7-9 p.m. $10.
III. Planting Your Vegetable Garden. Thursday, March 28, 7-9 p.m. $10.

English Gardens: Their History and Lessons
Instructor: David Streatfield
Tuesday, February 5 and Thursday, February 7, 7–9 p.m. $17.

Outstanding Maples for Your Garden
Instructor: Daniel Hinkley
Tuesday, February 12, 7-9 p.m. $10.

Recognizing Rhododendrons
Instructor: Jan Pirzio-Biroli
Thursday, February 14, 7-9 p.m. $10.

Growing Orchids at Home
Instructor: Gary Baker
Tuesday, February 19 and Thursday, February 21, 7-9 p.m. and Saturday, February 23, 10 a.m.-1 p.m. $25.

Landscape Pruning
Instructor: Fred Hoyt
Saturdays, February 23 and March 2, 10 a.m.-noon. $17.

Greenhouse Gardening
Instructor: Don Marshall
Saturdays, March 2, 9, and 16, 10 a.m.-noon. $24.

Wildlife Problems in the Urban Garden
Instructor: Stephen Penland
Tuesday, March 5 and Thursday, March 7, 7-9 p.m. $9.

Container Gardening for the Modern Cliff-Dweller
Instructor: Sharon Buck
Wednesday, March 27, 7-9 p.m. and Saturday, March 30, 10 a.m.-noon. $24.

FOR COURSE DESCRIPTIONS AND INFORMATION: 545-8033
TO REGISTER: Preregistration is required at least one week prior to first class meeting. Send check with name, address, and daytime telephone number to Urban Horticulture Courses, GF–15, University of Washington, Seattle, WA 98195. Make checks payable to the University of Washington. Bank cards not accepted.

Book Review

THE CAMELLIA STORY, by Colonel Tom Durrant. Heinemann Publishers, New Zealand, 1982. 159 pages, 2 distribution maps, 205 color photographs and 4 line drawings. Available through Merrimack Book Service, Topsfield, Massachusetts. Price $47.95

The Camellia Story is a fascinating study of the botanical, horticultural, literary and social history of the genus *Camellia.* It is the first volume of its kind for many years; it is written in English by a recognized international authority; it is unique.

The Camellia Story begins in China and Japan, where most cultivars of the genus originated. Here, camellia plants were not only grown to enhance and harmonize with nature, but also were used to provide cosmetic and culinary oils, fuel in the form of high grade charcoal, and most important of all, tea.

The story follows the introduction of camellias into Europe in the 17th century, where tea drinking and the rise in the popularity of the flowers of *Camellia japonica* made a great impact on society. There is a section dealing with the spread of camellias to the United States in the early 19th century, and their introduction to Australia and New Zealand by missionaries and settlers.

The author leads us in the steps of the famous plant explorers, whose discoveries made possible the production of many hybrid camellias and new cultivars, and recounts the story of the dramatic appearance in the western world of the Chinese garden forms of *Camellia reticulata.*

Today, there are exciting possibilities for future development, including the propagation of the yellow-flowered *Camellia chrysantha* and the production of fragrant species, small-scale forms and miniatures. Finally, the author discusses the basic principles of camellia cultivation.

The Camellia Story is not a "how to do it" book, nor in any way an exhaustive study of camellias, but rather it brings together the romantic history of the camellia, the people concerned with its discovery and development, and the widely differing societies in which it all has happened. The lively presentation of the material is enhanced throughout by the outstanding photographs. For those people who enjoy camellias, Tom Durrant's book would be a most colorful and informative addition to their library, and for those who may have only a casual interest, the book would make absorbing reading.

DORIS L. TAGGART

Tom Durrant, a recognized authority on camellias, has grown and studied large numbers of them for over thirty years in his New Zealand gardens. He was the Founder President of the New Zealand Camellia Society from 1957 to 1962, New Zealand Director of the International Camellia Society at its foundation in 1962, Honorary Editor of the New Zealand Camellia Bulletin *from 1957 to 1974, and official Registrar for the genus in New Zealand from 1960 to 1980. Tom Durrant has been honored with the Veitch Memorial Gold Medal, the highest award given to horticulturists not normally resident in Great Britain.*

Events and Classes of Interest:

The Arboretum's free public lecture series is temporarily being offered at the Center for Urban Horticulture, pending construction of the Arboretum's new Visitor Center.

MORNING LECTURES: 2nd Wednesday of each month, 10-11:30 AM; CUH Headquarters Building.

January 9: "Big Trees of Seattle," by Arthur Lee Jacobson, who has worked for several years compiling a list of Seattle's monsters. His article on this subject was published in the *Arboretum Bulletin* (Winter, 1982) and another is pending in a future issue.

February 13: "Roses: Care and Selection," by Edward Notske, representative of the Seattle Rose Society. Subjects to be covered are: the history of roses and how to care for them, pruning, and selection of high-quality varieties, with emphasis on modern roses.

EVENING LECTURES: 3rd Monday of each month, 7-8:30 PM; CUH Headquarters Building.

January 21: "The Fantastic Flora of Baja California," by Susan Libonati-Barnes and Van M. Bobbitt; a combination of slides taken on separate trips to different parts of this fascinating peninsula, where grow giant cacti, century plants and the Boojum Tree.

February 18: "The Galapagos Islands: Flora and Fauna," by Jeanne and Art Gardiner. A slide lecture on the biology and scenery of these isolated islands whose remarkable flora and fauna formed part of the basis for Charles Darwin's significant theory of evolution.

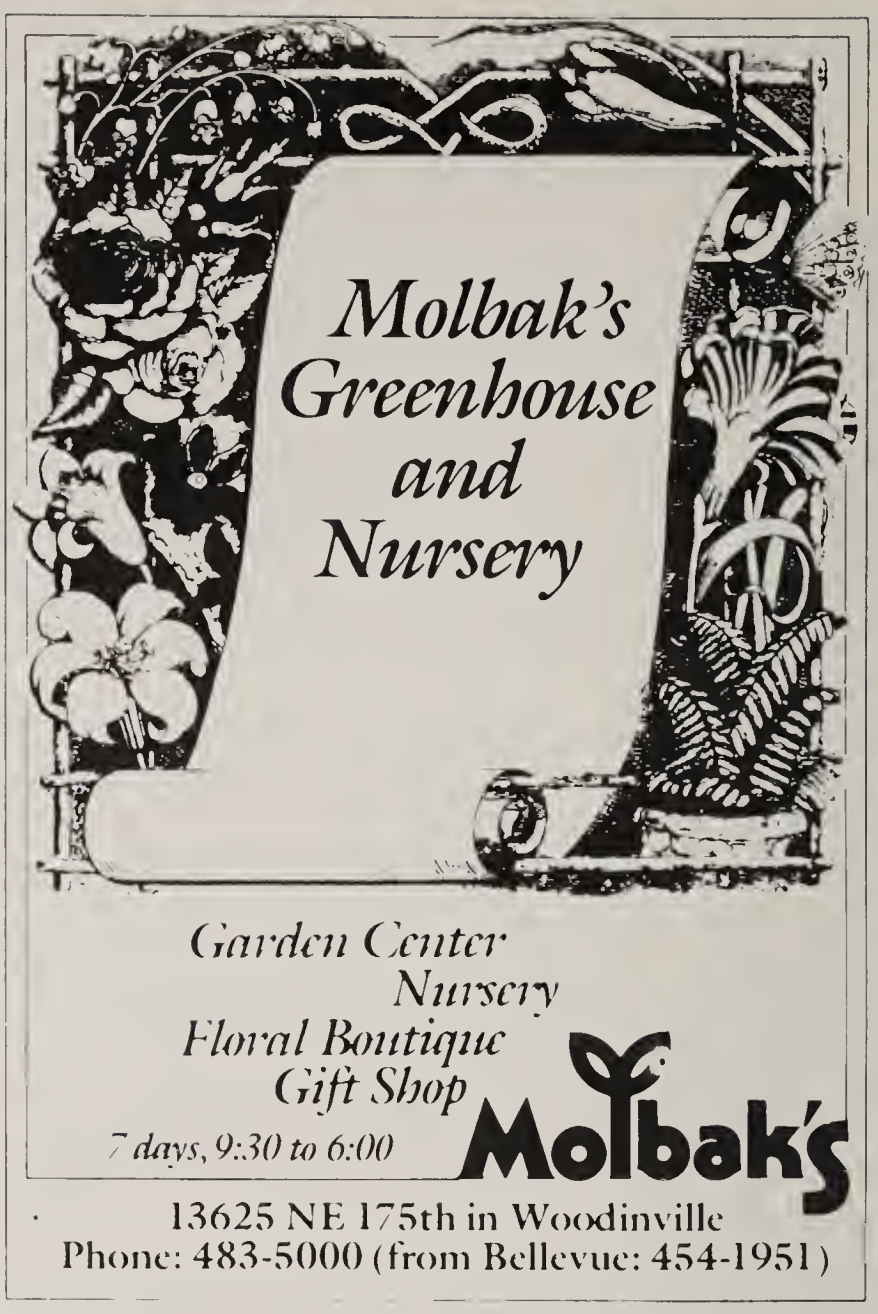
classes continued on next page

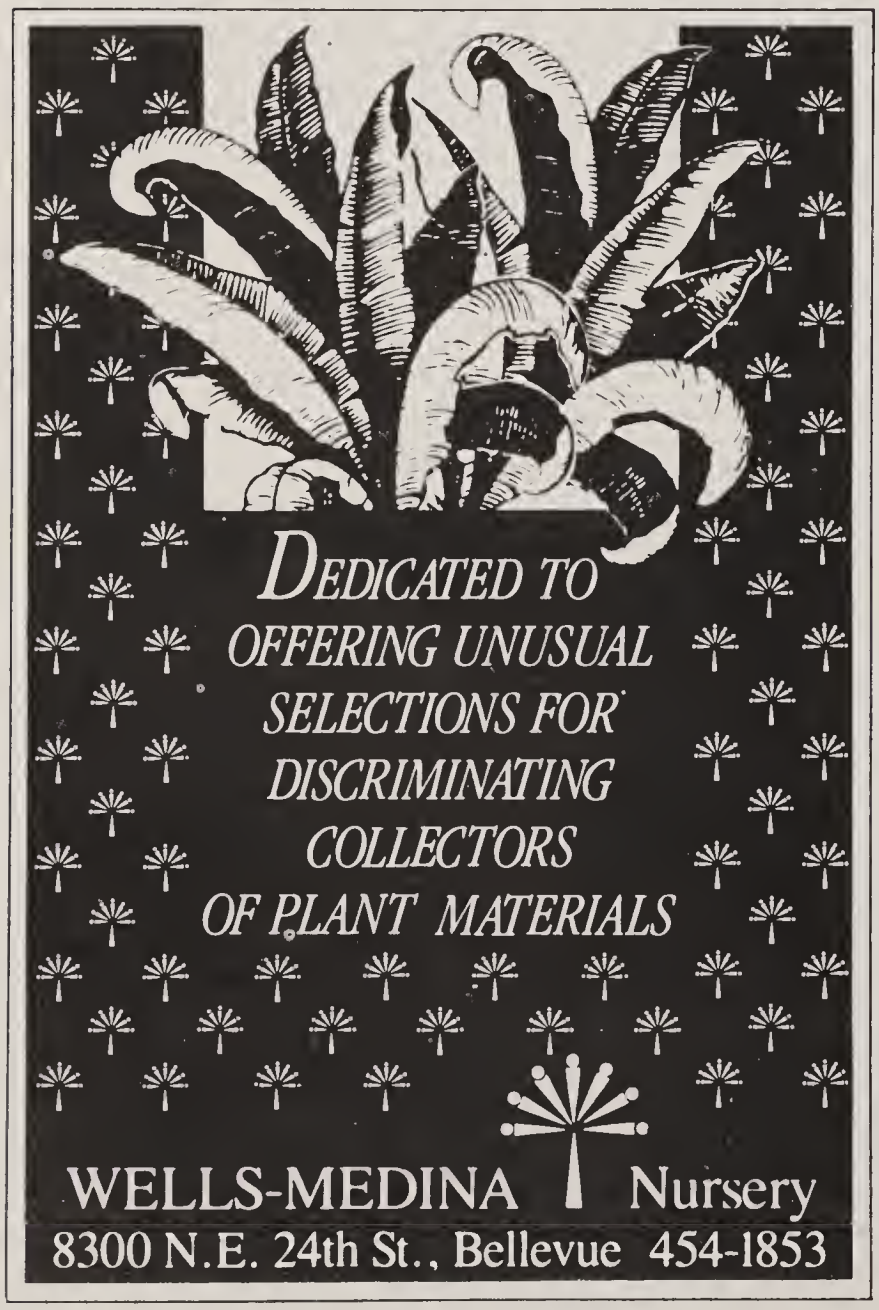
WINTER BIRDS OF SAN JUAN ISLAND: Instructors are Drs. Dennis Paulson and Jim Erckmann, zoologists, who will focus the weekend course, offered for the fifth time, on both eagles and seabirds, the large birds of prey; what they are doing and why this is a favorable locale for them. Accommodations at the University's Friday Harbor Laboratories facility are new but rustic. Friday evening, 8 p.m., through Sunday lunch, February 1-3, Friday Harbor Laboratories on San Juan Island; fee of $115 includes 5 meals, lodging and instruction. Register early. Winter Birds fills quickly.

NATURE PHOTOGRAPHY: SAN JUAN ISLAND, a weekender, offers a unique opportunity to master photographing nature's wonders. The program is jointly sponsored by UW and University of Victoria. Instructor: Tom Boyden, Ph.D. candidate, Botany/Zoology, UW. Friday evening, 8 p.m., through Sunday lunchtime, March 15-17; fee of $115 includes 5 meals, lodging, field trip transportation and instruction.

TRANSFORMING YOUR YARD INTO A GARDEN: Designed for those wishing to have a garden where a disaster area (or little better) currently exists—homeowners with small residential gardens, persons interested in Northwest plant materials and their functions in a garden or professionals with large-scale design problems to solve. One field trip scheduled. Instructor, Glen Hunt, landscape architect, ASLA. Ten Tuesdays on campus, January 15 - March 19, 7-9:30 p.m.; $55

All classes are completely described and registration information is detailed in the UW SPECTRUM, quarterly journal of Extension, available free by calling 543-2300.





MsK NURSERY

Mareen S. Kruckeberg

Arboretum Units, Garden Clubs and small groups are welcome to tour the Garden and Nursery.

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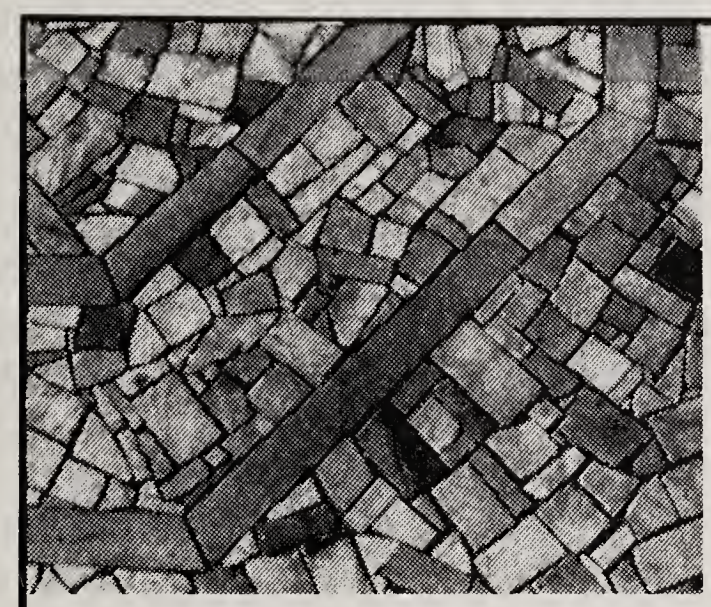

TRELLIS LANDSCAPE GARDENING

- Installation
- Gardening
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VISIT YOUR ARBORETUM IN WINTER

EXPLORERS' WALKS are offered throughout the year on the fourth Wednesday of each month. These two-hour walks begin at 10 a.m. in the Arboretum Greenhouse parking lot. Dates are January 23, February 27, and March 27.

SUNDAY TOURS IN WINTER: This abbreviated series continues the popular "Sundays at One" that are offered from spring through October. Dates are: January 20, February 10, and March 3. Meet on these Sundays at 1 p.m. in the parking lot of the Arboretum Greenhouses.